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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)
389.46211X00

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Application Number	Filed
10/580,100	May 19, 2006

First Named Inventor: Kouji WAKI

Art Unit	Examiner
3777	Nguyen, Hien Ngoc

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- ☑ attorney or agent of record. Registration number 39,397.
- ☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

/Leonid D. Thenor/ 
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April 20, 2011
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☑ *Total of 5 forms are submitted.

ARGUMENTS FOR REQUEST FOR PRE-APPEAL CONFERENCE

I. Independent claims 1 and 14, and claims depending therefrom are not anticipated

The Office Action has failed to make a prima facie case of anticipation, in part, by failing to properly interpret all the limitations recited in the claims. The ultrasonic imaging apparatus of independent claim 1 includes, in part, an elastic image structuring unit configured to obtain a strain or an elastic modulus of the object in a region corresponding to the ultrasound image based on the reflected echo signal and generate a color elastic image. Furthermore, the color elastic image is displayed with the hue for a larger region or a smaller region in the strain or the elastic modulus then a preset amount of the strain or the elastic modulus.

As discussed in the Disclosure, the assignment of the hue information in the color conversion table 31 can selected so as to prevent the display operation of a neutral portion 33. Specifically, an instruction is input to the boundary line control portion 22 from the operating unit 17 and the hue information in the color conversion table 31 is changed, thereby extracting only a hard region and a soft region with desired strain and only a region with high elastic modulus and a region with low elastic modulus. Such features further enable the elastic image to be displayed with the removal of noise in the unnecessary data. Additionally, it becomes possible to display either the hard region or the soft region with strain, or to display either the region with high elastic modulus or the region with low elastic modulus. See paragraph [0059] of the Published Application.

The Office Action has failed to show that all of the features recited in independent claim 1 are disclosed by Lin. The Office Action asserts that Lin

discloses an elastic image structuring unit as set forth in independent claim 1. The cited passage, however, merely indicates that vibrational Doppler imaging (VDI), can provide elastographic information based on induced vibration at a given frequency and power color Doppler imaging of induced tissue motion. While VDI provides improved spatial and contrast resolution, VDI images contain a mixture of acoustic reflectivity, tissue elasticity, and vibrational resonance information. This can result in diagnostic ambiguity, depending on the chosen vibrational frequency. See column 2, lines 40-49. Lin goes on to indicate that the vibrational resonance spectrum can be displayed for a graphically-defined region of interest. Alternatively, vibrational resonance spectra are acquired at each of a plurality of locations in an image, curve shape criteria are applied to differentiate the vibrational resonance characteristics at each location, and the resulting values are mapped into different colors in a two-dimensional space to provide a vibrational resonance image. See column 3, lines 29-40.

Next, the Office Action asserts that Lin discloses a color elastic image is displayed with the hue for a larger region or a smaller region in the strain or the elastic modulus then a preset amount of the strain or the elastic modulus. Review of the cited passage, however, suggests that Lin is disclosing something altogether different. The brief description of Fig. 9 merely indicates that the Figure illustrates how an exemplary set of curve shape criteria can be applied to a vibrational resonance spectrum to generate a color mapping, according to one embodiment of the present invention. See column 4, lines 14-18. There is no suggestion for the features alleged in the Office Action. Lin goes on to indicate that FIG. 9 illustrates a typical vibrational resonance spectrum 910 from living tissue, and provides exemplary spectral peaks a and c, -6 dB bandwidth points c- and c+ of the main

peak, valley b, and a selected frequency point d are identified. Curve shape criteria may be quantified in terms of various attenuation-independent parameters based on such spectrum features. See column 8, lines12-18. As can be clearly seen, Fig. 9 is completely different and unrelated to, for example, Fig. 6 of the present Disclosure.

The ultrasonic imaging apparatus of independent claim 14 includes, in part, a setting unit configured to variably set a corresponding relationship between a hue of the color elastic image displayed on the screen and a level of the strain or the elastic modulus. Additionally, the setting unit assigns the hue of the color elastic image so that the display is prevented from displaying a neutral portion in a color conversion table.

The Office Action has failed to show that all of the features recited in independent claim 14 are disclosed by Lin. The Office Action alleges that these features are disclosed by Lin. Contrary to this assertion, however, the cited passage merely indicates that the spectrum buffer 732 accumulates data points from each ROI for each respective spectrum, where the spectrum consists of spatial mean Doppler power data at all vibrational resonance frequencies. A curve shape estimator 834 uses predefined curve shape criteria to generate the quantitative indices used by the pixel encoder/interpolator 852 to assign values to center pixels in each ROI in a vibrational resonance ultrasonic Doppler image, and pixel values in between neighboring center pixels are filled. See column 7, line 62 - column 8, line 4. Furthermore, contrary to the assertions made in the Office action, Lin is completely silent on assigning the hue of the color elastic image so that the display is prevented from displaying a neutral portion in a color conversion table.

II. Independent claim 11 and dependent claim 12 are not obvious

Independent claim 11 defines an ultrasonic imaging apparatus that includes, in part, a feature of the strain or the elastic modulus being calculated from the amount of motion of the tissue. Furthermore, a display unit displays a color bar indicating a correspondence between the hue of the color elastic image and the strain or the elastic modulus.

The Office Action has failed to show that all of the features recited in independent claim 11 are disclosed by the combination of Lin and Miga. While the Office Action alleges that Lin discloses this particular feature, the cited passage never addresses a color elastic image or a relationship with the strain or elastic modulus. Rather, it appears that this feature has simply been misconstrued to sustain the rejection. Furthermore, Miga also does not appear to provide this particular feature.

For all the foregoing reasons, the pending rejections should be withdrawn.

III. Additional Notes

To the extent that independent claim 1 is believed to be allowable, Applicants are willing to amend claim 11 such that it depends from the allowable independent claim 1.